TECHNICAL MEMORANDUM

AMBIENT AIR QUALITY SURVEY IN THE VICINITY OF THE PETRO-CANADA REFINERY OAKVILLE, ONTARIO

AUGUST - NOVEMBER, 1985

ARB-69-86-AQM

March, 1986

Ontario
Ministry of the Environment

The Honourable
Jim Bradley
Minister

Rod McLeod, Q.C.
Deputy Minister

Technical Memorandum

Ambient Air Quality Survey in the Vicinity of the Petro-Canada Refinery Oakville, Ontario

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Prepared for:

Central Region
Ontario Ministry of the Environment

Prepared by:

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March 1986

Introduction:

As per the request of the Central Region, the Monitoring and Instrumentation Development Unit utilized two Mobile Air Monitoring Units (MAMu #1 and #2) and undertook a 10 day ambient air monitoring programme (7 days between August 9 and September 3rd and 3 days between October 25 and November 1st) in the vicinity of the Petro-Canada Refinery, Oakville.

Common Contaminants Sampling Programme:

Thirty-five monitoring periods comprised this monitoring programme and a total of 48.8 hours of ambient air data were acquired for the common contaminants - i.e. CO, NO_X, SO_2, TRS, THC, TH-M and 0_3 plus a complete set of meteorological parameters.

Whenever possible, concurrent upwind and downwind monitoring was undertaken with respect to this aforementioned source. Twenty-five monitoring periods were considered to be downwind of Petro Canada and 10 monitoring periods were upwind. All monitoring sites were off plant property, thus the Environmental Regulations would apply to the acquired results.

Results:

From the statistics of the merged data set (of the common contaminants) pertaining to the **downwind** monitoring periods, the overall arithmetic mean ground level concentrations were:
CO 1.22 ppm; TRS 0.003 ppm; THC 1.66 ppm; SO_2 0.021 ppm; TH-M 0.57 ppm; CH_4 1.06 ppm; NO_X 0.035 ppm; and 0_3 0.03 ppm.
The maximum 30-minute average ground level concentrations for these contaminants were:
CO 5.08 ppm; TRS 0.063 ppm; THC 2.68 ppm; SO_2 0.065 ppm; TH-M 1.52 ppm; CH_4 1.80 ppm; NO_X 0.166 ppm; and 0_3 0.05 ppm.

From the statistics of the merged data set pertaining to the **upwind** monitoring periods, the overall arithmetic mean ground level concentrations were:

CO 0.77 ppm; TRS 0.002 ppm; THC 1.63 ppm; SO_2 0.005 ppm; TH-M 0.31 ppm; CH_4 1.21 ppm; NO_x 0.119 ppm; and O_3 0.02 ppm.
The maximum 30-minute average ground level concentrations for these contaminants were:
CO 3.61 ppm; TRS 0.006 ppm; THC 2.55 ppm; SO_2 0.005 ppm; TH-M 1.06 ppm; CH_4 1.70 ppm; NO_x 0.411 ppm; and O_3 0.05 ppm.

Discussion:

After a review of the actual monitoring periods, calibrations, sampling techniques and meteorological conditions, the acquired data inferred that the Petro-Canada Refinery in Oakville was a source of TRS and to a lesser degree TH-M (non-methane hydrocarbons), CO and SO_2. Sulphurous odours were detected by the MOE staff downwind of this refinery (the TRS odour threshold concentration is approximately 0.005 ppm) and if the mean upwind TRS concentration (i.e. 0.002 ppm) is subtracted from the downwind measurements, the maximum 30-minute average TRS that could be attributed to this refinery is 0.06 ppm. From the data reported for the 1984 survey of this same refinery (ARB-016-85-ARSP), the maximum 30-minute average downwind TRS concentrations were found to be in the range of 0.01 to 0.015 ppm. With respect to SO_2, the 1984 results depicted concentrations in the 0.08 to 0.14 ppm range during May and the 0.01 to 0.02 ppm range during July/August. In 1985, the SO_2 concentrations were in the 0.01 to 0.07 ppm range. Thus when compared to the 1984 results, the TRS results acquired in 1985 reflect a 3 to 4 fold increase whereas the SO_2 results appear to be similar. Akin to the SO_2 results, the concentrations of CO, NO_x and O_3 also appear to be similar during both of these studies.

Comparison with Fixed Monitoring Station:

During the afternoons of August 19 and September 3rd, Mobile Air Monitoring Unit #2 (in August) and #1 (in September) acquired ambient air data very close to the Central Region's permanent air monitoring station located near the corner of Bronte Road and Valhalla Crescent.

Similar concentrations were reported/measured by both sets of instruments in August and September.

During the 2 hours of monitoring in August, the concentrations of CO as measured by the analyzer housed in the Monitoring Unit varied from 0.18 to 9.55 ppm (with a maximum 60-minute average of 1.9 ppm); of TRS, they varied from 0.001 to 0.008 ppm, (with a maximum 60-minute average of 0.002 ppm); of SO_2, they varied from 0.005 to 0.130 ppm (with a maximum 60-minute average of 0.02); and of NO_2, they varied from 0.-0.005 to 0.011 ppm (with a maximum 60-minute average of 0.01 ppm). During this same period, the two 60-minute average concentrations as measured by the analyzers housed in the fixed monitoring station for CO were 4 and 1 ppm; for TRS, they were 0.003 and 0.001 ppm; for SO_2, they were 0.01 ppm and 0 (or a value less then the minimal detectable limit for this analyzer); and for NO_2 they were 0.01 and 0.01 ppm.

Similar results were also obtained in September. From the concurrent 1.8 hours of acquired ambient air data, the analyzers housed in the Monitoring Unit reported concentrations of CO in the range of 0.56 to 13 ppm (with a maximum 60-minute average of 2 ppm); of TRS, they ranged from 0.001 to 0.006 ppm (with a maximum 60-minute average of 0.001 ppm); and of NO_2, the concentrations were less than 0.01 ppm. From the permanent station, the 60-minute average concentrations of CO, TRS and NO_2 were 2, 0.002 and 0.01 ppm respectively. SO_2 was not monitored by the Mobile Unit at this time but the concentration reported by the permanent station was zero or less than its minimal detectable limit.

Gas Chromatographic Sampling Programme:

Concern was expressed for the measurement of chlorinated organics that may be attributed to Petro Canada. In particular, special emphases was placed on the following organics: dichloromethane; chloroform; 1,2-dichloroethane; 1,1,2-trichloroethane; tetrachloromethane; trichloroethylene; 1,1,2,2-tetrachloroethane; styrene; and benzene.

For the gas chromatographic (GC) sampling programme, all acquired ambient air samples were of a 30-minute duration. During the aforementioned monitoring days, 47 GC samples were acquired downwind of Petro-Canada and 19 samples upwind.

GC-Organic Results:

From the **downwind** GC samples, the total hydrocarbon loading ranged from 63 to 1197 ug/m^3 with a mean of 419 ug/m^3 and standard deviation of 281 ug/m^3. On the average, the alkane fraction comprised 77% (a mean loading of 323 ug/m^3) of these total loadings, the aromatic fraction 12% (a mean loading of 50 ug/m^3) and the chlorinated organic fraction 1% (a mean loading of 3 ug/m^3). For the common alkanes (i.e. butane, pentane and hexane) and the BTX's (i.e. benzene, toluene and xylenes), the mean loadings were in the range of 10 to 60 ug/m^3. Styrene was not detected in any of the samples. With respect to the existing Environmental Regulations pertaining to these organics, all concentrations were found to be well below (often at baseline or background levels) their respective Guidelines, Standards, Criteria, etc.

For the **upwind** samples, the total hydrocarbon loadings ranged from 19 to 242 ug/m^3 with a mean of 73 ug/m^3 and standard deviation of 54 ug/m^3. On the average, the alkane fraction comprised 52% (a mean loading of 38 ug/m^3) of these loadings, the aromatic fraction 36% (a mean loading of 26 ug/m^3) and the chlorinated organic fraction 10% (a mean loading of 7 ug/m^3). The common alkane and BTX's mean loadings were all below 10 ug/m^3. Again, no styrene was detected in any of these samples.

The success of indentifying all the compounds depicted in the chromatograms is reflected by the area percent identified peak figures. For the upwind samples, the mean area percent identified peaks was 61% whereas downwind, this figure was 74%.

Discussion:

From the 1984 study, the total hydrocarbon loadings ranged from 60 to 7,000 ug/m^3 for the downwind samples. In this study, the maximum loading was 1,197 ug/m^3. For the upwind samples, the total hydrocarbon loadings remained essentially the same for both studies.

Xylenes appeared to be of concern in 1984 (with loading approaching 1,500 ug/m^3) but in 1985, the maximum loading was only 17 ug/m^3. A

similar statement could be made for the 1,2,4-trimethylbenzene and/or tert.-butylbenzene pair. In 1984, these loadings approached 250 ug/m^3 whereas in 1985, these loadings were less than 10 ug/m^3.

Similar loadings of 2-methylbutane (also known as isopentane or ethyldimethylmethane) were measured during the 1985 survey (these loadings ranged from 6 to 202 ug/m^3 with a mean concentration of 80 ug/m^3) as compared to the 1984 survey (the range then being 10 to 395 ug/m^3). No Environmental Regulation is set for this organic and from literature, this organic comprises approximately 9 to 11% by volume of gasoline.

Summary:

In summary, the 1985 results infer that the Petro-Canada Refinery in Oakville is a source of reduced sulphur compounds. For all other compounds measured, concentrations were similar or less than those reported during the 1984 survey. Good agreement was achieved between the results as acquired by the monitoring units and the Central Region's fix air monitoring station.

RB/mb/6INS1-10

Table 1a

Gas Chromatographic Analytical Results

- Downwind of Petro-Canada, Oakville 1985

units ug/m^3

	B192		A194		B193			A194			B231		B232	B270	B031
Total Hydrocarbons	468	482	384	376	484	512	242	338	267	143	730	215	709	276	685
Alkanes	344	377	270	273	381	427	202	279	160	108	529	148	531	152	550
Aromatics	85	68	37	53	57	49	29	30	31	18	155	55	134	84	79
Chlorinated Organics	-	-	1	-	-	-	-	1	-	-	1	-	-	3	3
Butane	54	47	65	60	73	98	64	62	47	31	57	29	67	-	107
Pentane	60	91	43	45	66	69	10	45	18	12	88	14	95	50	108
Hexane	18	13	9	9	13	13	4	9	4	3	22	5	23	21	25
Benzene	17	33	19	38	18	22	9	14	15	5	87	19	100	22	15
Toluene	14	1	7	6	8	1	5	6	5	4	28	13	15	15	17
Xylenes	17	10	4	4	8	8	7	4	3	3	16	9	9	16	13
2-Methylbutane	90	119	100	95	130	131	41	88	49	35	141	27	142	-	195
Area % Identified Peaks	55	55	74	88	67	66	65	76	86	79	75	71	79	70	72

Table 1b
Gas Chromatographic Analytical Results
- Downwind of Petro-Canada, Oakville 1985
units ug/m^3

	A282		A283	B291	B293	B031	A252				B252		B253
Total Hydrocarbons	261	160	134	372	442	685	111	150	111	114	149	137	102
Alkanes	194	119	89	280	367	550	77	98	71	68	116	105	84
Aromatics	34	30	34	57	41	79	12	38	12	24	24	19	12
Chlorinated Organics	-	-	-	2	2	3	-	1	-	1	1	3	-
Butane	28	15	9	54	55	107	18	21	18	11	28	15	20
Pentane	31	22	15	55	68	108	11	15	9	9	18	13	16
Hexane	9	8	6	17	16	25	3	5	3	4	5	3	3
Benzene	10	9	10	9	9	15	6	20	4	6	9	-	-
Toluene	8	8	9	11	9	17	3	5	3	6	4	6	5
Xylenees	6	7	6	11	8	14	2	5	3	6	5	5	4
2-Methylbutane	48	34	26	88	107	195	21	27	16	14	-	-	-
Area % Identified Peaks	63	72	63	72	75	72	75	85	84	70	72	63	63

Table 1c

Gas Chromatographic Analytical Results

- Downwind of Petro-Canada, Oakville 1985 -

Units ug/m^3

	A312				B312			B313	B314	A012					
Total Hydrocarbonos	507	883	481	498	683	547	380	362	966	63	150	125	262	423	27
Alkanes	400	565	361	356	580	482	324	267	859	35	67	60	125	183	16
Aromatics	54	57	77	48	71	36	36	50	63	15	55	32	34	34	40
Chlorinated Organcis	3	1	7	2	4	3	-	-	4	1	2	2	1	2	5
Butane	73	121	45	78	86	58	55	26	93	5	5	6	12	20	18
Pentane	79	116	93	81	86	67	59	22	111	4	5	5	8	10	14
Hexane	17	23	27	16	19	13	11	10	23	2	4	4	5	5	7
Benzene	24	26	34	15	22	13	14	9	25	6	9	9	5	8	8
Toluene	14	16	21	12	17	11	11	12	16	3	7	6	8	8	12
Xylenes	8	12	14	11	14	8	7	15	12	3	11	7	8	7	10
2-Methylbutane	102	148	111	106	104	73	74	31	120	6	9	9	15	27	28
Area % Identified Peaks	92	90	72	88	90	82	94	64	92	73	54	66	56	66	56

Table 1d

Gas Chromatographic Analytical Results

- Downwind of Petro-Canada, Oakville 1985 -

Units ug/m^3

	B012				#Entries	Mean	Std. Dev.	Max.	Min.
Total Hydrocarbons	740	758	1197	1153	47	419	281	1197	63
Alkanes	638	660	1071	1024	47	323	250	1071	35
Aromatics	36	58	70	81	47	50	29	155	12
Chlorinated Organics	6	6	5	4	28	3	2	7	-
Butane	51	71	251	254	46	56	52	254	-
Pentane	31	42	146	142	47	50	40	146	4
Hexane	13	14	27	25	47	12	8	27	2
Benzene	9	14	35	43	45	19	19	100	-
Toluene	14	18	23	23	47	10	6	28	1
Xylenes	9	11	10	9	47	8	4	17	2
2-Methylbutane	44	58	202	197	43	80	57	202	-
Area % Identified Peaks	81	85	87	72	47	74	11	94	54

Table 2a

Gas Chromatographic Analytical Results

- Upwind of Petro-Canada, Oakville 1985

Units ug/m^3

	A193		B191	A232				A272		A273		A281		A292		A253
Total Hydrocarbons	72	25	48	242	172	96	73	83	61	29	65	45	52	108	57	22
Alkanes	51	13	28	127	77	42	32	52	32	15	40	22	19	37	28	10
Aromatics	14	10	19	84	83	41	37	20	17	10	14	21	27	36	14	12
Chlorinated Organics	1	-	-	6	6	4	-	-	-	-	-	-	-	17	9	-
Butane	10	3	5	25	7	6	5	24	8	3	3	3	5	9	5	4
Pentane	3	2	5	12	5	4	4	3	3	1	5	4	3	6	4	1
Hexane	3	1	2	9	3	3	-	2	1	1	2	2	1	4	2	-
Benzene	5	5	5	9	14	10	7	6	5	3	3	6	5	14	4	6
Toluene	2	1	4	23	12	8	9	5	4	2	3	5	11	7	3	3
Xylenes	3	1	7	18	15	6	8	5	4	2	3	6	3	6	3	2
2-Methylbutane	2	2	6	21	9	8	8	6	7	2	9	5	-	-	-	2
Area % Identified Peaks	66	55	38	65	61	53	52	59	54	55	59	45	56	62	68	68

Table 2b

Gas Chromatographic Analytical Results

- Upwind of Petro-Canada, Oakville 1985 -

Units ug/m^3

	A314		B013	#Entries	Mean	St. Dev.	Max.	Min.
Total Hydrocarbons	72	19	50	19	73	54	242	19
Alkanes	39	10	40	19	38	27	127	10
Aromatics	18	9	10	19	26	22	84	9
Chlorinated Organics	-	-	-	6	7	5	17	-
Butane	8	-	6	18	8	6	25	-
Pentane	6	2	6	19	4	2	19	1
Hexane	2	1	2	17	2	2	9	-
Benzene	10	4	4	19	7	3	14	3
Toluene	4	2	3	19	6	5	23	1
Xylenes	2	1	3	19	5	5	21	1
2-Methylbutane	9	3	8	16	7	5	21	-
Area % Identified Peaks	95	72	67	19	61	12	95	38

OAKVILLE_PCM : DD01

Start: 85/11/01 10:24 Scan: 60 sec
Average: 30.00 min Report: 15.00 min
Loc: Merging of downwind data..25 monitoring periods

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
10:24-10:54	.7 .023	.003 11.7	1.49 -	- 1004.0	.44 45.	1.05 90.	.17	.14	.04	.012
10:39-11:09	.7 .026	.004 11.9	1.56 -	- 1003.9	.51 49.	1.05 88.	.13	.10	.04	.014
10:54-11:24	.7 .036	.004 12.3	1.63 -	- 1003.7	.58 49.	1.05 86.	.12	.09	.04	.015
11:09-11:39	.6 .045	.006 12.8	1.63 -	- 1003.5	.59 50.	1.04 85.	.12	.08	.04	.016
11:24-11:54	.5 .038	.005 12.7	1.54 -	- 1003.2	.49 52.	1.05 84.	.10	.07	.04	.016
11:39-12:09	.5 .035	.003 12.6	1.48 -	- 1003.1	.42 50.	1.07 84.	.09	.05	.04	.018
11:54-12:24	.5 .040	.004 13.0	1.44 -	- 1002.9	.39 48.	1.08 83.	.09	.05	.05	.017
12:09-12:39	.4 .038	.003 13.1	1.48 -	- 1002.7	.42 50.	1.09 81.	.09	.04	.04	.018
12:24-12:54	.4 .038	.008 12.8	1.68 -	- 1002.5	.59 49.	1.12 84.	.08	.04	.04	.019
12:39-13:09	.4 .038	.010 12.6	1.77 -	- 1002.3	.66 48.	1.13 84.	.08	.03	.04	.022
12:54-13:24	.4 .040	.006 12.9	1.63 -	- 1002.1	.53 53.	1.14 82.	.07	.03	.04	.024
13:09-13:39	.5 .041	.004 13.0	1.54 -	- 1001.9	.42 53.	1.14 81.	.07	.03	.04	.024
13:24-13:54	.5 .038	.005 13.2	1.58 -	- 1001.9	.45 52.	1.15 80.	.08	.03	.04	.023
13:39-14:09	.5 .035	.005 13.3	1.49 -	- 1001.9	.36 54.	1.15 80.	.08	.03	.05	.024
13:54-14:24	- -	- -	- -	- -	- -	- -	-	-	-	-
14:09-14:39	- -	- -	- -	- -	- -	- -	-	-	-	-

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	Nox	NO2	NO	Ozone
14:24-14:54	- -	- -	- -	- -	- -	- -	-	-	-	-
14:39-15:09	2.9 .867	.003 25.7	2.41 14.	- 999.7	.62 18.	1.80 257.	.01	nd	nd	.043
14:54-15:24	2.6 .872	nd 26.6	2.30 14.	- 999.6	.53 19.	1.79 260.	nd	nd	nd	.045
15:09-15:39	2.4 .871	nd 26.4	2.22 14.	- 999.5	.46 21.	1.77 262.	nd	nd	nd	.047
15:24-15:54	- -	- -	- -	- -	- -	- -	-	-	-	-
15:39-16:09	- -	- -	- -	- -	- -	- -	-	-	-	-
15:54-16:24	1.7 .854	nd 26.2	2.14 14.	- 999.8	.43 20.	1.72 279.	nd	nd	nd	.044
16:09-16:39	1.3 .841	nd 25.8	2.05 15.	- 999.7	.36 24.	1.70 286.	nd	nd	nd	.040
16:24-16:54	1.0 .852	nd 25.1	1.98 15.	- 999.6	.30 22.	1.69 285.	nd	nd	nd	.038
16:39-17:09	.9 .858	nd 25.5	1.93 14.	- 999.6	.26 23.	1.69 284.	nd	nd	nd	.037
16:54-17:24	1.0 .853	nd 25.3	1.89 14.	- 999.6	.20 26.	1.70 287.	nd	nd	nd	.035
17:09-17:39	.9 .852	nd 25.3	1.87 20.	- 1000.9	.21 27.	1.66 291.	.02	.01	nd	.036
17:24-17:54	.6 .861	.007 26.9	1.70 32.	- 1003.9	.13 27.	1.54 286.	.03	.02	nd	.042
17:39-18:09	.3 .868	.063 * 28.5	1.66 38.	- 1005.5	.14 25.	1.48 283.	.02	.02	nd	.048
17:54-18:24	.4 .846	.068 * 27.8	1.66 39.	- 1005.4	.14 24.	1.48 290.	.02	.02	nd	.047
18:09-18:39	.4 .839	.006 26.8	1.65 42.	- 1005.1	.13 25.	1.48 289.	.03	.02	nd	.041
18:24-18:54	.7 .829	.004 26.8	1.87 47.	- 1004.8	.34 25.	1.50 291.	.05	.04	.01	.038

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
18:39-19:09	.8 .028	.003 25.9	2.02 49.	- 1003.2	.58 23.	1.52 297.	.06	.05	nd	.024
18:54-19:24	1.0 .044	nd 27.1	2.04 46.	- 1002.9	.57 20.	1.45 304.	.06	.06	nd	.026
19:09-19:39	1.3 .044	nd 27.7	1.97 45.	- 1002.6	.54 21.	1.42 310.	.06	.06	nd	.028
19:24-19:54	.9 .033	nd 27.1	1.83 46.	- 1002.4	.43 22.	1.39 321.	.06	.06	nd	.030
19:39-20:09	- -	- -	- -	- -	- -	- -	-	-	-	-
19:54-20:24	- -	- -	- -	- -	- -	- -	-	-	-	-
20:09-20:39	1.2 .030	nd 26.8	1.96 46.	- 1002.5	.55 15.	1.40 8.	.06	.04	.03	.024
20:24-20:54	1.5 .027	nd 26.8	1.95 46.	- 1002.5	.54 14.	1.39 11.	.06	.03	.03	.022
20:39-21:09	- -	- -	- -	- -	- -	- -	-	-	-	-
20:54-21:24	- -	- -	- -	- -	- -	- -	-	-	-	-
21:09-21:39	- -	- -	- -	- -	- -	- -	-	-	-	-
21:24-21:54	.4 .001	nd 23.2	1.61 56.	- 998.0	.22 9.	1.37 323.	.02	.03	nd	.021
21:39-22:09	.6 .000	nd 22.7	1.66 57.	- 998.1	.25 7.	1.39 318.	.03	.03	nd	.016
21:54-22:24	.7 .000	nd 22.3	1.71 59.	- 998.1	.28 3.	1.41 304.	.03	.03	nd	.010
22:09-22:39	- -	- -	- -	- -	- -	- -	-	-	-	-
22:24-22:54	- -	- -	- -	- -	- -	- -	-	-	-	-
22:39-23:09	- -	- -	- -	- -	- -	- -	-	-	-	-

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
22:54-23:24	.8 .044	.002 14.3	1.74 -	- 1018.4	.65 25.	1.04 309.	.10	.07	.03	.012
23:09-23:39	.9 .046	.003 14.5	1.73 -	- 1012.8	.71 25.	1.02 309.	.08	.05	.03	.014
23:24-23:54	.9 .049	.003 14.8	1.71 -	- 1012.0	.68 20.	1.02 309.	.07	.04	.03	.014
23:39-00:09	.9 .051	.002 15.3	1.74 -	- 1011.6	.71 19.	1.02 308.	.06	.04	.02	.014
23:54-00:24	.7 .053	nd 16.0	1.72 -	- 1012.3	.70 18.	1.01 309.	.06	.04	.02	.015
85/11/02										
00:09-00:39	.7 .054	nd 16.7	1.68 -	- 1012.7	.66 16.	1.02 302.	.05	.03	.02	.016
00:24-00:54	.8 .055	.002 17.4	1.63 -	- 1012.6	.61 17.	1.02 298.	.05	.03	.02	.018
00:39-01:09	- -	- -	- -	- -	- -	- -	-	-	-	-
00:54-01:24	- -	- -	- -	- -	- -	- -	-	-	-	-
01:09-01:39	- -	- -	- -	- -	- -	- -	-	-	-	-
01:24-01:54	- -	- -	- -	- -	- -	- -	-	-	-	-
01:39-02:09	- -	- -	- -	- -	- -	- -	-	-	-	-
01:54-02:24	- -	- -	- -	- -	- -	- -	-	-	-	-
02:09-02:39	- -	- -	- -	- -	- -	- -	-	-	-	-
02:24-02:54	- -	- -	- -	- -	- -	- -	-	-	-	-
02:39-03:09	.3 .075	nd 34.8	1.05 27.	nd 1019.0	.67 15.	.39 259.	.03	.02	nd	.024
02:54-03:24	.3 .073	nd 34.9	1.01 28.	nd 1018.8	.65 14.	.37 258.	.03	.02	nd	.026

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Barom	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
03:09-03:39	- -	- -	- -	- -	- -	- -	-	-	-	-
03:24-03:54	- -	- -	- -	- -	- -	- -	-	-	-	-
03:39-04:09	- -	- -	- -	- -	- -	- -	-	-	-	-
03:54-04:24	- -	- -	- -	- -	- -	- -	-	-	-	-
04:09-04:39	- -	- -	- -	- -	- -	- -	-	-	-	-
04:24-04:54	- -	- -	- -	- -	- -	- -	-	-	-	-
04:39-05:09	- -	- -	- -	- -	- -	- -	-	-	-	-
04:54-05:24	- -	- -	- -	- -	- -	- -	-	-	-	-
05:09-05:39	- -	- -	- -	- -	- -	- -	-	-	-	-
05:24-05:54	- -	- -	- -	- -	- -	- -	-	-	-	-
05:39-06:09	- -	- -	- -	- -	- -	- -	-	-	-	-
05:54-06:24	.8 .091	.003 23.0	1.48 38.	nd 1021.7	.71 1.	.76 222.	.02	nd	nd	.019
06:09-06:39	.8 .090	.003 23.1	1.44 38.	.02 1021.8	.67 0.	.76 122.	.02	nd	nd	.024
06:24-06:54	1.2 .076	.003 22.8	1.45 40.	.04 1021.8	.66 2.	.78 79.	.02	nd	nd	.023
06:39-07:09	1.9 .077	.002 22.8	1.42 39.	.03 1021.7	.61 1.	.79 92.	.02	nd	nd	.025
06:54-07:24	1.9 .088	.002 23.2	1.45 39.	.02 1021.6	.64 1.	.80 102.	.02	nd	nd	.030
07:09-07:39	- -	- -	- -	- -	- -	- -	-	-	-	-

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
07:24-07:54	- -	- -	- -	- -	- -	- -	-	-	-	-
07:39-08:09	- -	- -	- -	- -	- -	- -	-	-	-	-
07:54-08:24	2.4 .084	nd 22.8	1.56 39.	.03 1020.9	.76 2.	.80 63.	nd	nd	nd	.036
08:09-08:39	2.0 .085	nd 22.9	1.47 39.	.02 1020.9	.69 1.	.77 59.	nd	nd	nd	.037
08:24-08:54	1.4 .093	nd 22.9	1.39 40.	.02 1021.0	.62 1.	.75 77.	nd	nd	nd	.040
08:39-09:09	1.3 .087	nd 22.9	1.41 40.	.02 1021.0	.64 1.	.76 245.	nd	nd	nd	.041
08:54-09:24	.9 .064	nd 22.6	1.37 41.	.02 1021.1	.61 2.	.74 248.	nd	nd	nd	.037
09:09-09:39	.5 .049	nd 21.9	1.30 41.	.01 1021.1	.55 2.	.74 255.	nd	nd	nd	.035
09:24-09:54	.5 .063	nd 21.8	1.23 41.	.02 1021.0	.49 1.	.71 261.	nd	nd	nd	.033
09:39-10:09	.4 .070	nd 22.0	1.12 40.	.02 1021.1	.40 2.	.69 256.	nd	nd	nd	.034
09:54-10:24	.4 .064	nd 21.9	1.08 41.	.02 1021.2	.36 2.	.69 258.	nd	nd	nd	.034
10:09-10:39	.4 .049	nd 21.3	1.16 42.	.02 1021.3	.48 1.	.68 270.	nd	nd	nd	.030
10:24-10:54	- -	- -	- -	- -	- -	- -	-	-	-	-
10:39-11:09	- -	- -	- -	- -	- -	- -	-	-	-	-
10:54-11:24	- -	- -	- -	- -	- -	- -	-	-	-	-
11:09-11:39	1.0 .039	nd 23.9	.92 33.	.02 1025.7	.16 2.	.73 173.	.03	.02	.01	.013
11:24-11:54	1.7 .035	nd 24.0	.94 33.	.02 1025.5	.16 3.	.74 178.	.03	.02	.01	.015

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Barom	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
11:39-12:09	2.2 .026	.002 23.7	1.00 33.	.04 1025.5	.20 3.	.76 185.	.05	.02	.02	.015
11:54-12:24	- -	- -	- -	- -	- -	- -	-	-	-	-
12:09-12:39	- -	- -	- -	- -	- -	- -	-	-	-	-
12:24-12:54	1.2 .025	.005 24.2	1.34 31.	nd 1023.4	.53 9.	.79 108.	.05	.06	nd	.016
12:39-13:09	1.1 .008	nd 22.5	1.12 33.	nd 1023.3	.31 9.	.78 99.	.06	.07	nd	.010
12:54-13:24	1.0 .006	.002 21.4	1.08 34.	nd 1023.2	.26 9.	.79 95.	.06	.07	nd	.011
13:09-13:39	.7 .027	.002 21.8	1.08 32.	nd 1023.0	.23 11.	.83 95.	.04	.05	nd	.021
13:24-13:54	.5 .041	.003 22.8	1.12 31.	nd 1022.8	.23 12.	.86 96.	.02	.03	nd	.027
13:39-14:09	- -	- -	- -	- -	- -	- -	-	-	-	-
13:54-14:24	- -	- -	- -	- -	- -	- -	-	-	-	-
14:09-14:39	.6 .006	.004 22.3	1.23 32.	nd 1023.9	.42 9.	.79 110.	.02	.03	nd	.024
14:24-14:54	- -	- -	- -	- -	- -	- -	-	-	-	-
14:39-15:09	- -	- -	- -	- -	- -	- -	-	-	-	-
14:54-15:24	.5 .047	nd 29.5	.99 28.	nd 1028.9	.19 10.	.85 259.	nd	nd	nd	.020
15:09-15:39	- -	- -	- -	- -	- -	- -	-	-	-	-
15:24-15:54	- -	- -	- -	- -	- -	- -	-	-	-	-
15:39-16:09	- -	- -	- -	- -	- -	- -	-	-	-	-

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
15:54-16:24	.1 .016	nd 20.5	1.35 32.	nd 1025.4	.73 19.	.62 88.	nd	nd	nd	.011
16:09-16:39	- -	- -	- -	- -	- -	- -	-	-	-	-
16:24-16:54	- -	- -	- -	- -	- -	- -	-	-	-	-
16:39-17:09	- -	- -	- -	- -	- -	- -	-	-	-	-
16:54-17:24	- -	- -	- -	- -	- -	- -	-	-	-	-
17:09-17:39	- -	- -	- -	- -	- -	- -	-	-	-	-
17:24-17:54	.1 .010	nd 20.0	1.26 32.	nd 1023.9	.61 17.	.66 82.	nd	nd	nd	.014
17:39-18:09	- -	- -	- -	- -	- -	- -	-	-	-	-
17:54-18:24	- -	- -	- -	- -	- -	- -	-	-	-	-
18:09-18:39	.7 .011	nd 19.8	1.45 32.	nd 1024.6	.88 17.	.55 104.	nd	nd	nd	.013
18:24-18:54	.6 .028	nd 19.1	1.45 31.	.02 1027.0	.72 7.	.68 96.	.01	.01	nd	.021
18:39-19:09	.5 .051	nd 18.2	1.45 30.	.03 1031.1	.43 12.	.90 307.	.02	.01	nd	.029
18:54-19:24	.3 .060	nd 18.3	1.45 29.	.02 1032.5	.33 17.	.98 299.	.02	.01	nd	.031
19:09-19:39	.2 .062	nd 18.8	1.44 29.	.02 1032.6	.31 17.	.98 295.	.01	.01	nd	.032
19:24-19:54	.3 .063	nd 19.0	1.46 30.	.02 1032.6	.33 16.	.97 291.	.01	.01	nd	.032
19:39-20:09	.3 .060	nd 18.9	1.47 30.	.03 1032.4	.38 18.	.96 282.	nd	.01	nd	.033
19:54-20:24	.3 .045	nd 19.2	1.46 30.	.03 1032.3	.38 18.	.95 284.	.01	.02	nd	.034

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
20:09-20:39	.4 .037	nd 19.5	1.44 29.	.02 1032.3	.36 16.	.95 283.	.01	.02	nd	.034
20:24-20:54	.3 .042	nd 19.9	1.42 29.	.02 1032.2	.32 16.	.95 277.	nd	.01	nd	.035
20:39-21:09	- -	- -	- -	- -	- -	- -	-	-	-	-
20:54-21:24	- -	- -	- -	- -	- -	- -	-	-	-	-
21:09-21:39	- -	- -	- -	- -	- -	- -	-	-	-	-
21:24-21:54	- -	- -	- -	- -	- -	- -	-	-	-	-
21:39-22:09	- -	- -	- -	- -	- -	- -	-	-	-	-
21:54-22:24	- -	- -	- -	- -	- -	- -	-	-	-	-
22:09-22:39	2.3 .038	nd 13.1	2.01 32.	.03 1025.0	.00 27.	1.15 88.	.02	.02	nd	.030
22:24-22:54	2.3 .044	.002 13.5	2.06 31.	.03 1024.9	.07 28.	1.14 90.	.02	.02	nd	.033
22:39-23:09	1.5 .040	nd 13.5	1.99 31.	.03 1024.8	.01 29.	1.12 97.	.02	.02	nd	.034
22:54-23:24	1.3 .033	nd 13.1	1.84 32.	.02 1024.6	.66 28.	1.11 95.	.02	.02	nd	.033
23:09-23:39	1.4 .033	nd 13.2	1.81 31.	.02 1024.4	.61 25.	1.11 92.	.02	.02	nd	.031
23:24-23:54	1.8 .037	nd 13.6	1.78 31.	.02 1024.3	.57 25.	1.12 86.	.02	.02	nd	.029
23:39-00:09	1.9 .040	nd 13.8	1.76 31.	.01 1024.0	.55 26.	1.12 82.	.02	.02	nd	.030
23:54-00:24	1.7 .043	nd 13.9	1.77 32.	.01 1023.6	.58 26.	1.10 82.	.02	.02	nd	.031
85/11/03 00:09-00:39	1.6 .046	nd 14.1	1.83 31.	.01 1023.4	.66 26.	1.10 82.	.02	.02	nd	.032

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baroa	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
00:24-00:54	- -	- -	- -	- -	- -	- -	-	-	-	-
00:39-01:09	- -	- -	- -	- -	- -	- -	-	-	-	-
00:54-01:24	.7 .049	.003 14.7	1.99 31.	.01 1023.7	.78 34.	1.15 83.	.02	.02	nd	.035
01:09-01:39	1.4 .041	nd 14.5	2.11 31.	.02 1023.5	.92 32.	1.15 83.	.02	.02	nd	.037
01:24-01:54	3.6 .038	.004 14.2	2.51 32.	.04 1023.4	1.27 38.	1.23 81.	.03	.02	nd	.038
01:39-02:09	- -	- -	- -	- -	- -	- -	-	-	-	-
01:54-02:24	- -	- -	- -	- -	- -	- -	-	-	-	-
02:09-02:39	- -	- -	- -	- -	- -	- -	-	-	-	-
02:24-02:54	.5 .027	nd 13.6	2.38 31.	.03 1021.6	1.21 33.	1.18 95.	.02	.02	nd	.031
02:39-03:09	1.8 .031	nd 13.9	2.37 30.	.03 1021.7	1.30 35.	1.18 95.	.02	.02	nd	.032
02:54-03:24	1.3 .034	.002 14.1	2.25 30.	.04 1021.4	1.16 35.	1.18 96.	.03	.02	nd	.032
03:09-03:39	1.3 .049	.002 14.6	2.09 30.	.04 1021.2	.96 36.	1.18 94.	.03	.02	nd	.033
03:24-03:54	2.8 .058	.002 15.5	2.28 29.	.04 1021.1	1.15 35.	1.13 91.	.03	.01	.01	.035
03:39-04:09	2.8 .046	.003 15.5	2.58 30.	.04 1021.0	1.46 33.	1.17 89.	.02	nd	nd	.036
03:54-04:24	4.3 .047	.004 15.4	2.66 30.	.05 1020.8	1.47 33.	1.23 86.	.03	.01	.01	.036
04:09-04:39	5.1 .052	.003 15.7	2.61 30.	.06 1020.4	1.37 33.	1.25 83.	.03	.01	.01	.036
04:24-04:54	4.5 .045	.002 15.5	2.68 31.	.06 1020.2	1.52 33.	1.22 82.	.03	.01	.01	.036

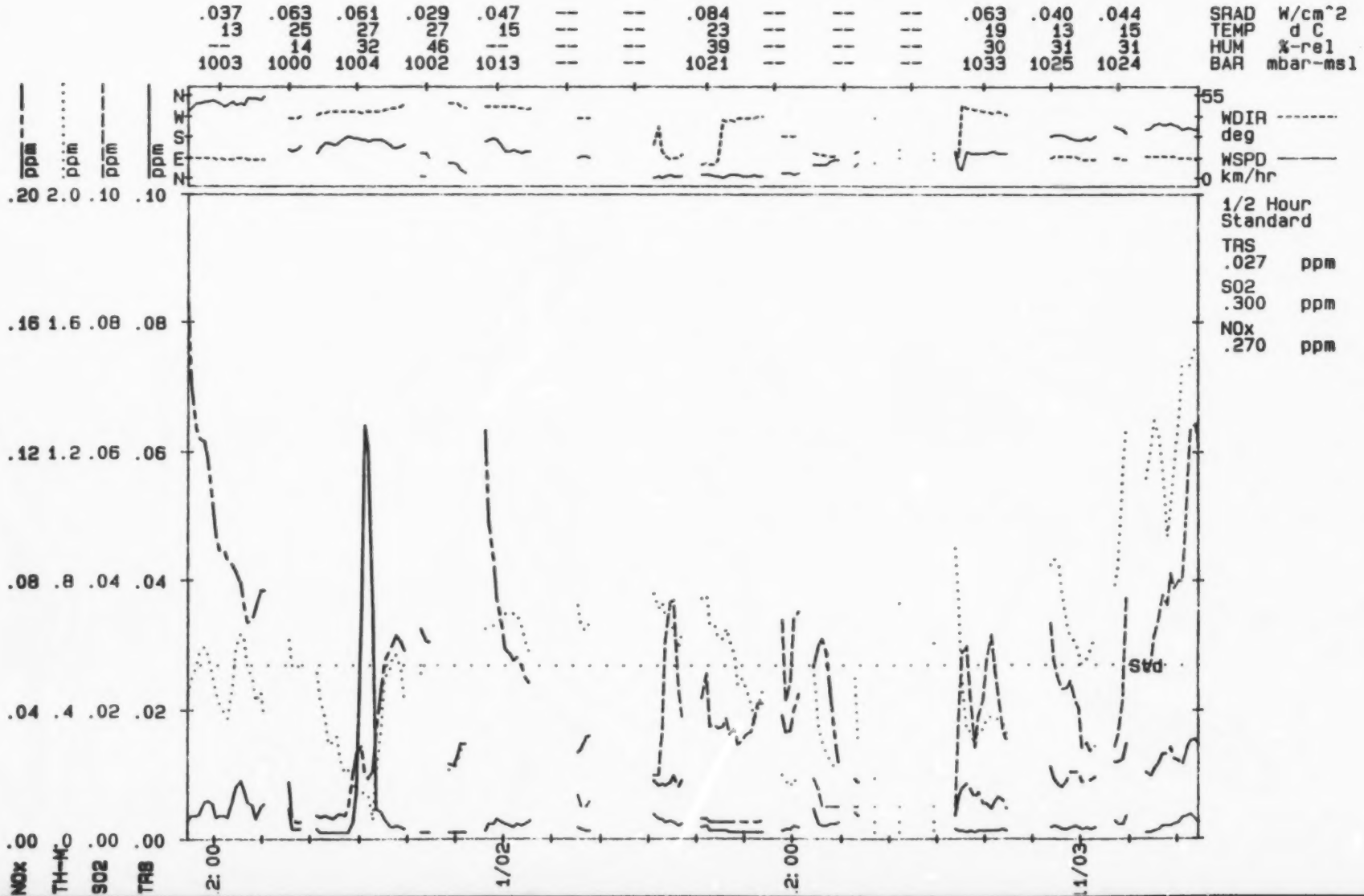
Statistics	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
Units	ppm W/cm^2	ppm d C	ppm %-rel	ppm mbar-asl	ppm km/h	ppm deg	ppm	ppm	ppm	ppm
Arith. Mean	1.22 .0448	.0033 20.4	1.657 33.4	.021 1015.5	.574 -	1.064 -	.035	.026	.012	.027
Std. Dev.	2.73 .0245	.0118 5.7	.490 9.7	.019 10.0	.386 -	.338 -	.034	.026	.013	.011
Geo. Mean	.66 -	.0018 -	1.590 -	.014 -	.453 -	1.010 -	.022	.017	.008	.024
Geo.Std.Dev	2.96 -	2.2441 -	1.332 -	2.466 -	2.139 -	1.394 -	2.796	2.531	2.210	1.663
Min Reading	.05 .0000	.0010 11.3	.697 13.1	.005 985.1	.050 .1	.321 .8	.005	.005	.005	.007
Max Reading	98.47 .1166	.2430 35.4	5.751 60.1	.130 1032.8	4.646 70.1	2.480 359.7	.210	.180	.085	.083
Min Average	.13 .0000	.0010 11.7	.925 13.6	.005 998.0	.132 .4	.373 8.2	.005	.005	.005	.010
Max Average	5.00 .0932	.0631 34.9	2.684 58.5	.065 1032.6	1.519 54.2	1.790 323.5	.166	.139	.046	.040
# Valid Rdgs	2040. 2040.	2040. 2040.	2040. 1673.	1213. 2040.	2040. 2040.	2040. 2040.	2040.	2040.	2040.	2040.
Min.Det.Lev	.10 -	.0020 -	.100 -	.010 950.0	.100 -	.100 -	.010	.010	.010	.004
1/2hr Std	5.20 -	.0270 -	- -	.300 -	- -	- -	.270	-	-	.100

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
a One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min

OAKVILLE_PCM: DD01

Start: 85/11/01 10:24 Scan: 60 sec. Ave: 30.00 min.
Loc: Merging of downwind data..25 monitoring periods



OAKVILLE_PCM : UU01

Start: 85/11/01 10:29 Scan: 60 sec
Average: 30.00 min Report: 15.00 min
Loc: Merging of upwind data....10 monitoring periods

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baro	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
10:29-10:59	.6 .057	nd 24.9	1.70 -	- 1001.5	nd 34.	1.70 255.	nd	nd	nd	.040
10:44-11:14	- -	-	-	-	-	-	-	-	-	-
10:59-11:29	- -	-	-	-	-	-	-	-	-	-
11:14-11:44	1.4 .000	nd 20.2	2.00 51.	- 1002.8	.82 2.	1.29 146.	nd	nd	.01	.006
11:29-11:59	1.2 .000	nd 20.9	1.92 48.	- 1002.2	.69 3.	1.20 175.	nd	nd	.01	.010
11:44-12:14	.8 .000	nd 21.6	1.71 45.	- 1001.8	.51 4.	1.23 173.	nd	nd	nd	.014
11:59-12:29	.3 .000	nd 22.4	1.55 43.	- 1001.8	.38 7.	1.20 188.	.13	.05	.08	.015
12:14-12:44	- -	-	-	-	-	-	-	-	-	-
12:29-12:59	- -	-	-	-	-	-	-	-	-	-
12:44-13:14	.8 .013	nd 22.8	2.55 51.	- 1003.8	1.06 1.	1.13 112.	.06	.04	.02	nd
12:59-13:29	.8 .004	nd 22.0	2.41 53.	- 1003.5	.88 0.	1.13 103.	.04	.03	.01	nd
13:14-13:44	nd .003	nd 21.0	2.25 56.	- 1003.2	.48 1.	1.13 81.	.01	.01	nd	.006
13:29-13:59	.1 .013	nd 21.0	2.22 56.	- 1003.0	.37 2.	1.14 69.	nd	nd	nd	.009
13:44-14:14	.2 .034	nd 22.4	2.14 54.	- 1002.8	.34 4.	1.11 62.	nd	nd	nd	.010
13:59-14:29	.1 .032	nd 23.3	2.06 52.	- 1002.6	.32 4.	1.07 70.	nd	nd	nd	.011
14:14-14:44	nd .012	nd 22.6	1.97 54.	- 1002.7	.21 1.	1.25 114.	.01	.01	nd	.009

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
14:29-14:59	nd .004	nd 21.5	1.91 57.	- 1002.1	.12 1.	1.84 101.	.02	.02	nd	.009
14:44-15:14	- -	- -	- -	- -	- -	- -	-	-	-	-
14:59-15:29	- -	- -	- -	- -	- -	- -	-	-	-	-
15:14-15:44	1.1 .023	.006 23.7	1.71 50.	- 1005.5	.18 11.	1.50 297.	.41 *	.16	.25	.011
15:29-15:59	1.1 .034	.006 24.8	1.73 49.	- 1005.1	.21 10.	1.50 283.	.41 *	.15	.27	.011
15:44-16:14	1.0 .046	.005 24.5	1.73 48.	- 1004.7	.21 15.	1.50 276.	.38 *	.14	.24	.013
15:59-16:29	.9 .048	.005 24.9	1.69 47.	- 1004.3	.17 18.	1.49 274.	.36 *	.13	.23	.012
16:14-16:44	1.0 .042	.006 25.0	1.69 46.	- 1004.0	.18 17.	1.49 273.	.39 *	.13	.26	.009
16:29-16:59	- -	- -	- -	- -	- -	- -	-	-	-	-
16:44-17:14	- -	- -	- -	- -	- -	- -	-	-	-	-
16:59-17:29	.9 .037	nd 26.9	1.69 48.	- 1002.8	.17 30.	1.51 276.	.14	.14	nd	.027
17:14-17:44	.8 .043	nd 27.3	1.67 47.	- 1002.4	.15 32.	1.51 282.	.10	.10	nd	.028
17:29-17:59	.7 .041	nd 27.3	1.62 46.	- 1002.1	.11 35.	1.49 292.	.08	.08	nd	.027
17:44-18:14	1.1 .026	nd 26.4	1.67 48.	- 1001.8	.16 23.	1.48 296.	.07	.06	nd	.024
17:59-18:29	- -	- -	- -	- -	- -	- -	-	-	-	-
18:14-18:44	- -	- -	- -	- -	- -	- -	-	-	-	-
18:29-18:59	.7 .004	nd 18.4	1.50 -	- 1001.1	.26 8.	1.25 73.	.03	.02	nd	nd

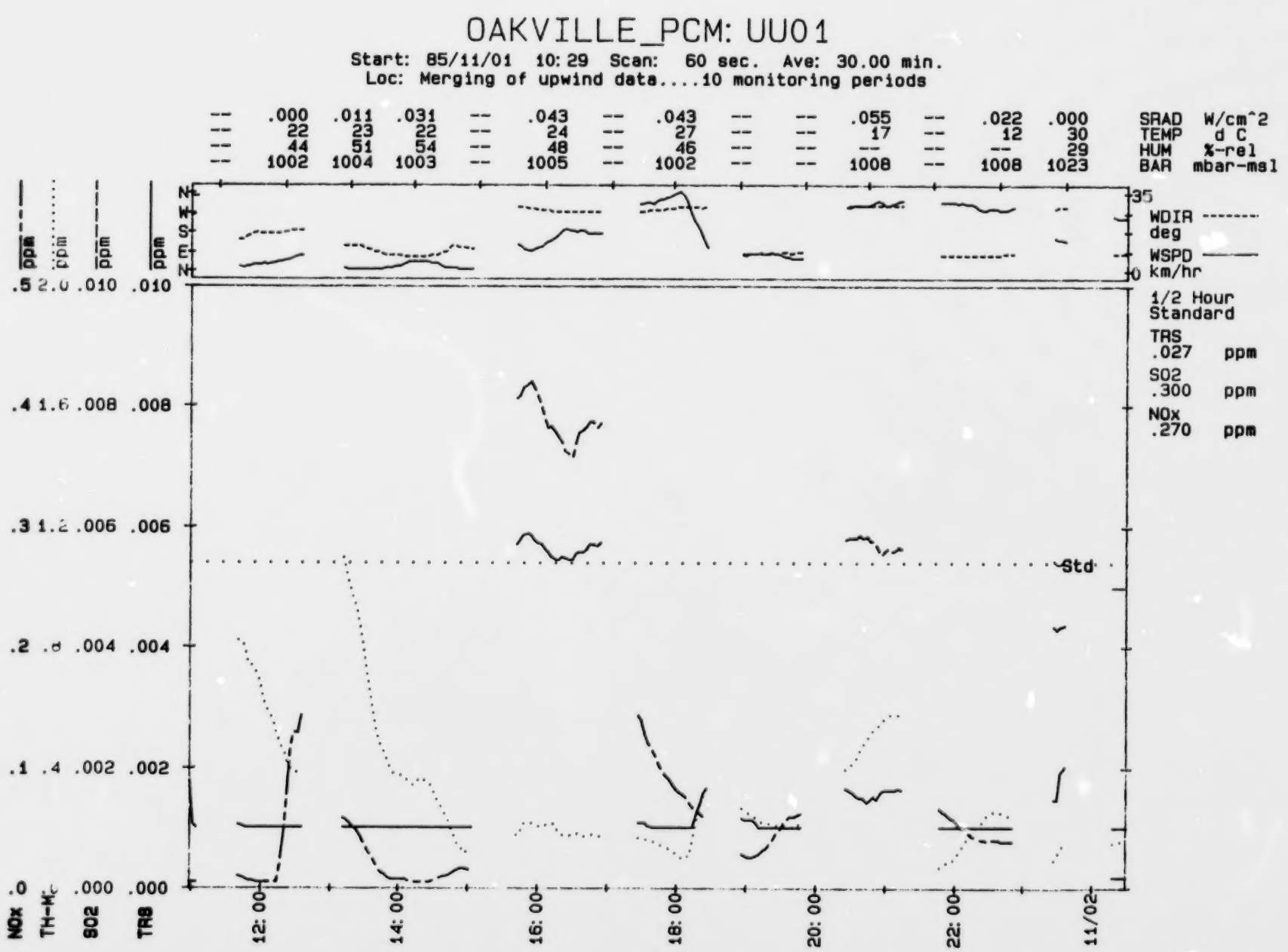
Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Barom	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
18:44-19:14	.7 .006	nd 18.4	1.45 -	- 1002.7	.22 8.	1.24 77.	.03	.03	nd	nd
18:59-19:29	.8 .007	nd 18.7	1.44 -	- 1000.9	.21 7.	1.24 83.	.05	.05	nd	nd
19:14-19:44	.8 .008	nd 19.2	1.44 -	- 1001.1	.21 6.	1.24 86.	.06	.06	nd	nd
19:29-19:59	- -	-	-	-	-	-	-	-	-	-
19:44-20:14	- -	-	-	-	-	-	-	-	-	-
19:59-20:29	.8 .056	nd 16.8	1.35 -	- 1008.4	.48 29.	.95 297.	.29 *	.08	.21	.009
20:14-20:44	.9 .055	nd 17.3	1.44 -	- 1008.2	.49 30.	.95 302.	.29 *	.08	.21	.006
20:29-20:59	.9 .054	nd 17.6	1.52 -	- 1008.0	.56 29.	.96 302.	.28 *	.08	.20	.009
20:44-21:14	- -	-	-	-	-	-	-	-	-	-
20:59-21:29	- -	-	-	-	-	-	-	-	-	-
21:14-21:44	- -	-	-	-	-	-	-	-	-	-
21:29-21:59	.3 .005	nd 12.8	1.08 -	- 1006.8	nd 31.	.98 71.	.06	.04	.02	.031
21:44-22:14	.3 .010	nd 12.9	1.15 -	- 1006.7	.18 30.	.98 71.	.04	.03	.02	.032
21:59-22:29	.2 .017	nd 12.6	1.19 -	- 1007.5	.24 28.	.96 75.	.04	.02	.01	.034
22:14-22:44	.2 .021	nd 12.4	1.19 -	- 1007.7	.24 28.	.96 77.	.04	.02	.01	.034
22:29-22:59	- -	-	-	-	-	-	-	-	-	-
22:44-23:14	- -	-	-	-	-	-	-	-	-	-

Time	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
22:59-23:29	3.6 .202	nd 29.9	.88 29.	nd 1023.3	.11 14.	.75 293.	.22	.04	.17	.014
23:14-23:44	- -	-	-	-	-	-	-	-	-	-
23:29-23:59	- -	-	-	-	-	-	-	-	-	-
23:44-00:14	- -	-	-	-	-	-	-	-	-	-
23:59-00:29	.2 .037	nd 15.1	1.38 32.	nd 1020.4	.15 24.	1.04 88.	nd	nd	nd	.045

Statistics	CO SolarRad	TRS Temp	THC Humidity	SO2 Baron	Non-CH4 Wind-Spd	Methane Wind-Dir	NOx	NO2	NO	Ozone
Units	ppm W/cm^2	ppm d C	ppm %-rel	ppm mbar-asl	ppm km/h	ppm deg	ppm	ppm	ppm	ppm
Arith. Mean	.77 .0243	.0018 21.8	1.638 46.2	.005 1005.6	.306 -	1.205 -	.119	.053	.070	.017
Std. Dev.	1.46 .0236	.0017 4.8	.399 8.8	.001 5.9	.260 -	.241 -	.139	.050	.100	.013
Geo. Mean	.40 -	.0014 -	1.588 -	.005 -	.222 -	1.181 -	.046	.029	.019	.011
Geo.Std.Dev	3.38 -	1.6710 -	1.293 -	1.134 -	2.295 -	1.224 -	4.751	3.472	5.043	2.731
Min Reading	.05 .0000	.0010 10.3	.674 14.4	.005 990.5	.050 .0	.711 .2	.005	.005	.005	.002
Max Reading	21.52 .0971	.0097 30.5	3.143 59.2	.011 1023.7	2.043 47.9	1.717 350.7	.490	.210	.369	.057
Min Average	.05 .0000	.0010 12.4	.797 29.1	.005 1000.7	.050 .5	.749 62.1	.005	.005	.005	.002
Max Average	3.61 .0667	.0058 29.9	2.547 56.8	.005 1023.3	1.056 35.2	1.696 302.4	.411	.164	.269	.045
# Valid Rdgs	744. 744.	744. 744.	744. 478.	74. 744.	744. 744.	744. 744.	744.	744.	744.	744.
Min.Det.Lev	.10 -	.0020 -	.100 -	.010 950.0	.100 -	.100 -	.010	.010	.010	.004
1/2hr Std	5.20 -	.0270 -	- -	.300 -	- -	- -	.270	-	-	.100

\- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min


OAKVILLE_PCM: UU01
Start: 85/11/01 10:29 Scan: 60 sec. Ave: 30.00 min.
Loc: Merging of upwind data....10 monitoring periods
-- .000 .011 .031 -- .043 -- .043 -- -- .055 -- .022 .000
-- 22 23 22 -- 24 -- 27 -- -- 17 -- 12 30
-- 44 51 54 -- 48 -- 46 -- -- -- -- -- 29
-- 1002 1004 1003 -- 1005 -- 1002 -- -- 1008 -- 1008 1023
SRAD W/cm^2
TEMP d C
HUM %-rel
BAR mbar-msl
N
W
S
E
N
35
0
WDIR
deg
WSPD
km/hr
ppm
ppm
ppm
ppm
.5 2.0 .010 .010
.4 1.6 .008 .008
.3 1.2 .006 .006
.2 .8 .004 .004
.1 .4 .002 .002
.0 .000 .000
NOx
TH-HC
SO2
TRS
Std
1/2 Hour
Standard
TRS
.027 ppm
SO2
.300 ppm
NOx
.270 ppm
12:00
14:00
16:00
18:00
20:00
22:00
11/02